

Light vanished. This enlargement of the fringes was so great that the rays which go to the innermost fringe seemed to be bent above twenty times more when this fringe was ready to vanish, than when one of the Knives was taken away.

And from this and the former Observation compared, I gather, that the Light of the first fringe passed by the edge of the Knife at a distance greater than the eight-hundredth part of an Inch, and the Light of the second fringe passed by the edge of the Knife at a greater distance than the Light of the first fringe did, and that of the third at a greater distance than that of the second, and that of the streams of Light described in the fifth and sixth Observations passed by the edges of the Knives at less distances than that of any of the fringes.

## O B S. VIII.

I caused the edges of two Knives to be ground truly streight, and pricking their points into a board so that their edges might look towards one another, and meeting near their points contain a rectilinear Angle, I fastened their handles together with Pitch to make this Angle invariable. The distance of the edges of the Knives from one another at the distance of four Inches from the angular point, where the edges of the Knives met, was the eighth part of an Inch, and therefore the Angle contained by the edges was about 1 degr. 54'. The Knives thus fixed together I placed in a beam of the Sun's Light, let into my darkened Chamber through a Hole the 42th part of an Inch wide, at the distance  
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of ten or fifteen Feet from the Hole, and let the Light which passed between their edges fall very obliquely upon a smooth white Ruler at the distance of half an Inch, or an Inch from the Knives, and there saw the fringes made by the two edges of the Knives run along the edges of the shadows of the Knives in lines parallel to those edges without growing sensibly broader, till they met in Angles equal to the Angle contained by the edges of the Knives, and where they met and joined they ended without crossing one another. But if the Ruler was held at a much greater distance from the Paper, the fringes became something broader and broader as they approached one another, and after they met they crossed one another, and then became much broader than before.

Whence I gather that the distances at which the fringes pass by the Knives are not increased nor altered by the approach of the Knives, but the Angles in which the rays are there bent are much increased by that approach; and that the Knife which is nearest any ray determines which way the ray shall be bent, and the other Knife increases the bent.

## O B S. IX.

When the rays fell very obliquely upon the Ruler at the distance of the third part of an Inch from the Knives, the dark line between the first and second fringe of the shadow of one Knife, and the dark line between the first and second fringe of the shadow of the other Knife met with one another, at the distance of the fifth part of an Inch from the end of the Light which passed between  
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